MALTA'S CHANGING DEMOGRAPHY

MALTA'S CHANGING DEMOGRAPHICS - PROJECTING MALTA'S FUTURE HEALTH SYSTEM DEMANDS TO 2030

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ABSTRACT

Malta's health system is constantly adapting to challenges. Recent demographic changes are delineated by an ageing native population and a mass inflow of foreign workers. These economic immigrants have contributed significantly to the solid growth of Malta's economy, but have also added significant pressure on its infrastructure, including on the health care system. Using a purely demographic model, linear projections of health care demands were built using adjusted population projections by age-group and gender until 2030. Projections indicate that attendances at the Accident and Emergency Department, Primary Health Care Centres and psychiatric out-patient clinics will continue to increase, together with cancer incidence rates, a major health cost driver. Projected total number of births and attendances at the genito-urinary clinic are expected to decrease. Hospital admissions and bed night use is mostly driven by the ageing population who are expected to exert a strong pressure on public health care spending. Significant policy and infrastructure responses are likely to be required to increase capacity of the primary health sector as well as to address bed shortages.

Introduction

Over the past two decades, the health system in Malta has had to respond to multiple challenges brought about by socio-economic and demographic change. The capacity of the health system is constantly being both extended and stretched, trying to keep up with a continuously evolving environment driven by a number of factors. This is primarily led by population growth due to immigration of workers and pensioners, demographic ageing and a strong tourism industry, not to mention lifestyle factors such as risk-taking behaviours [1].

Malta is traditionally an emigration country, however, the warm Mediterranean climate, friendly English–speaking people and constantly increasing demand for both seasonal and skilled labour have attracted more and more foreigners to relocate to the island [2]. With insubstantial recent local population increases and a fertility rate of less than two births per woman since 1997 [3], the main contributor to the increase of the Maltese labour force has been foreign labour. Mass inflows of non-Maltese workers, especially since 2014 have helped to offset the declining Maltese working-age population, as well as boosted Malta's growth. Economic immigrants have contributed significantly to Malta becoming one of the most dynamic and best performing economies in Europe over the past four years [4].

Malta's economy has grown at a solid pace, maintaining momentum [5]. Real GDP growth is estimated to have reached 6.2% in 2018, and growth is expected to continue, albeit at a slower pace [4]. Growing economies in turn continue to necessitate more foreign workers, with further influx of foreign workers in Malta not only inevitable but necessary. There were almost 43,000 foreign workers registered in Malta in June 2018, more than double the figure of 21,000 in 2014. These include 12,407 non-EU workers along 30,564 from the EU [6],[7].

While the rise in potential output growth is welcome, associated population growth is likely to pose a number of challenges and additional stress on the infrastructure, including on the healthcare system. Investment to upgrade the public infrastructure is necessary to sustain the continued influx of foreign workers. The increasing diversity of the population in itself creates new challenges, and health care service planning and delivery need to continuously adapt to and target the needs of the population and its composition in order to remain responsive.

In 2016 76% of net migrants were under the age of 40 years, which has been a common phenomenon in recent years. Malta has thus noted an increase in the population aged 15-44 years, in an otherwise ageing population [8]. The changing population demographics are expected to result in altered demands on the health care system and services, especially driven by migration and the elderly. This study has selected specific areas within the health system likely to be affected by the transitional age-group population change, and built projections of what the demands on the health care system in these areas are likely to be based on population projections.

Methodology

All population projections are surrounded by considerable uncertainty since these often depend on various assumptions and are based on expectations that these will remain valid for a relatively long period of time.

National level population projections undertaken by Eurostat using 2015 as the base line were revised using the latest population data available from the National Statistics Office for 2017 to create baseline projections of the population in Malta for the next decade, with linear projections by five-year age group. These take into account the recent and ongoing trends in population change and the likely future size and structure of the population, with the working age population expected to continue growing at a steady rate until 2022 [9]. This relates to the current economic policy, which is expected to last throughout the current government legislature going through to 2022. The authors do not feel they are in a position to forecast the nation's economic policy past the time of the next general elections due to the possibility of a change in leadership. They thus thought it prudent to make the assumption that post-2022 the projected influx of migrant workers will not assume the same rate of growth, but will plateau. In this way they opted for a conservative estimate of the number of working migrants, which is in line with the decreased rate of growth forecast for Malta [4].

The latest population projections released by Eurostat provide a main scenario and four variants for population developments from 2015 to 2080 [10]. In comparison with Eurostat's 'high migration' scenario for Malta - which implies a net migration assumption to be approximately half the net migration observed since 2014 – one can note the same overall growth across all age groups. It appears that the high migration scenario falls short on two counts: firstly, that the total population does not expand enough; and secondly there is a disparity between age groups. Since select age groups are growing at a greater rate, the high migration model effectively under-estimates middle age-groups, which represent the majority of the foreign workforce.

Available health service data was requested from Mater Dei Hospital and the Directorate for Health Information and Research and applied to the projected Maltese population. Linear projections by five-year age-groups were built to project the likely future demands on the health system for specific areas. Certain health care services and indicators believed to be impacted in one way or another by the current migrant-driven population growth were selected. Baseline data by age-group, gender and identity card letter for the last available full year of clean data was collected for attendances to the public health system's main accident and emergency department, primary health care centres, psychiatric out-patient clinics and genito-urinary clinic, as well as data for the number of birth deliveries and overall cancer incidence rates. Most of the areas for projection indirectly relate to service use by the age groups in which the vast majority of the foreign workforce fall. Cancer incidence was also included as it is a significant cost driver of any health care system, and an area that impacts heavily on health expenditure.

Acknowledging that Malta's recent demographics include an ageing population coupled with increased life expectancy, projections for the health care demands of medical and surgical in-patients were calculated to estimate the hospital bed days required per year in both these areas. This was done using data for discharges from Malta's main acute teaching hospital, Mater Dei Hospital. With such utilization being higher among the older age-groups, these indicators are somewhat more native-driven and give an overview of the expected broad effects and burden on the health care system over the next decade. For the purpose of calculating surgical discharges and bed night utilization, surgery department data includes the following specialties: general surgery, emergency surgery, ENT, paediatric surgery, plastics, urology and vascular surgery.

Despite the widely referred to phenomenon of the healthy immigrant effect, where immigrants are on average healthier than the native population, with selectivity playing an important role, there is also evidence of convergence of migrants' physical health to native-born levels with time [11],[12). For the purpose of this study, it has been assumed that immigrants in Malta share the same morbidity profile as native-born, and that the future morbidity and mortality profiles of the resident Maltese population will remain the same as for the current population.
In line with the 2030 Agenda for Sustainable Development laying out the Sustainable Development goals and guiding the United Nations Development programme policy, Malta is currently developing a new forward looking overarching National Health Strategy to cover the period post 2020, to 2030. With this in mind, the timeline for which projections of health care service utilization and other related indicators were calculated extends until 2030.

Projections are purely demographic and do not take into account any other potential compounding factors which may affect healthcare demands.

Projections

Primary Health Care and Accident & Emergency Department

In general, the first points of contact for a patient with the public health care system are invariably the Primary Health Care (PHC) sector, and the Accident and Emergency Department (A&E). Both provide easy access points for any one requiring health care, with or without a referral ticket. Figure 1 demonstrates the projection of attendances in Primary Health Care and at the A&E department at Mater Dei Hospital. Basing projections on 2018 data, where 89% of PHC attendances were among Maltese citizens and the remainder foreigners, total attendances in Primary Health Care are expected to increase by 15% from 1.06 million attendances in 2019 to 1.22 million in 2030. This results in an additional 14,500 appointments per year.

The projected situation for attendances at the A&E department from 2019 to 2030 is similar, however the outlook is slightly better with an expected increase in attendances of 6.5% from 144,089 to 153,867. In 2018 20% of all A&E attendances were by non-Maltese persons, a figure which also includes tourists. In fact, 3,678 of these attendances were by citizens of other EU Member States (MS) who were entitled for free treatment on presentation of their European Health Insurance Card, but for which Malta claimed back the costs from the host Member State. Of note, the proportion of EHIC cards issued to non-Maltese increased from 2.4% in 2011 to 3.9% in 2019, with the number of EHIC claims Malta received from other EU MS for EHIC card use among foreigners increased from 74 in 2011 to 227 in 2018.

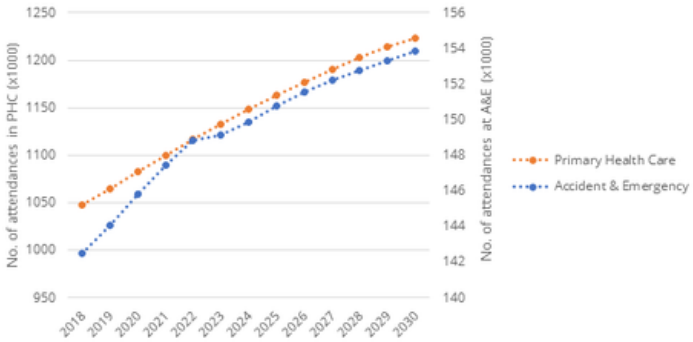

Figure 1: Projections of attendances in Primary Health Care, and at the Accident & Emergency department in Mater Dei Hospital (2019-2030)

Projected number of birth deliveries and GU Clinic attendances

The proportion of deliveries in non-Maltese mothers increased from 13.8% to 17.1% in just one year from 2013 to 2014, corresponding to the time when larger inflows of foreign workers were observed. This figure further increased to 19.9% of deliveries in 2016 (13,14). Figure 2 demonstrates that birth deliveries in Malta are projected to decrease from 4390 in 2019 to 3742 in 2030. The decreasing birth rate corresponds to a relative reduction in the projected female population of child-bearing age, which is observed among those aged 39 years or younger. With a birth rate of 1.45 in 2016, one can expect this to continue decreasing, and will further contribute to Malta's ageing population.

Total number of attendances at the Genito-Urinary (GU) clinic at Mater Dei Hospital have recorded an increase of 30-40% year on year for the past few years, which is consistent both with an increase of the population aged 15-44 years, as well as potentially higher sexually transmitted infection risk behaviours, an increasingly common occurrence mainly related to a perception gap of people underestimating their risk (15). According to our projections, using baseline data from 2018, one can expect that attendances at the GU clinic will gradually decrease slightly over the span of the next decade from 6395 appointments in 2019 to 5797 appointments in 2030. The projected rate of decrease is higher among females (11.5%) than males (8%).

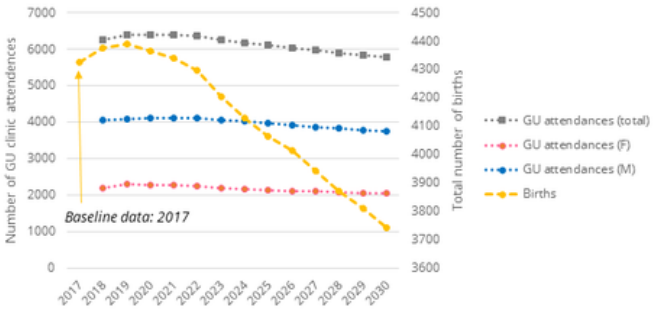

Figure 2: Projection of number of birth deliveries, and attendances at the Genito-Urinary Clinic, Mater Dei Hospital (2019-2030)

Projection of Cancer Incidence and Psychiatric out-patient attendances

Cancer remains one of the leading causes of morbidity and mortality worldwide. In 2016 there were 3291 new cases of cancer among the Maltese population, of which 1825 were in males, and 1466 were in females. The vast majority of the new cancer cases were among Maltese, with only 7% of the total number of cases among foreigners. Projections of cancer incidence show a constant rate of increase, from 3609 cases predicted for 2019, to 4515 cases in 2030, as can be seen in Figure 3.

This relates to an effective increase of 22.5% to a predicted incidence rate of 915/100,000 population in 2030. Neoplasms are major contributors to mortality in old age, and would be expected to increase in relation to Malta's ageing population (16). Cancer is a major driver of the healthcare system, with diagnostics, treatment and care contributing to a large percentage of the healthcare budget and spending. The projected 22.5% increase in incidence rate over the next decade is likely to impact significantly on the healthcare system.

While it has been suggested healthier and better educated people are more likely to emigrate, a variety of factors may over time produce a decline in what may have initially been a healthy migrant status. In fact, numerous European studies have found higher rates of common mental disorders among migrants as compared with non-migrants (17). Data on attendances at psychiatric out-patients (POP) clinics for 2017 indicate 720 out of 12,503 attendances were among foreigners (5.8%). Projections of POP attendances up to 2030 are shown in Figure 3 and indicate a steady rate of increase until 2022 following which they remain relatively stable until 2026 with a very slow rate of increase thereafter. The percentage increase of attendances from 2018 to 2030 is that of 3.8%. Appointments are more common amongst females despite the larger proportion of the males in the projected total population.

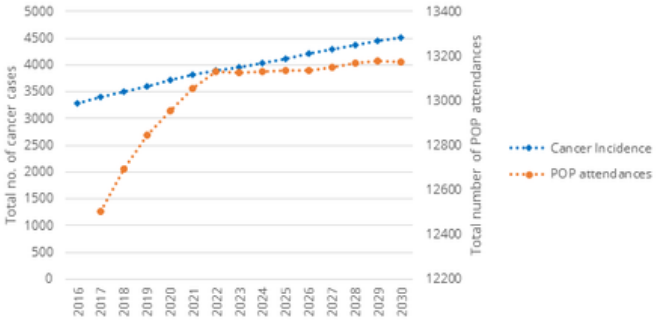

Figure 3: Projections of cancer incidence and psychiatric out-patient attendances (POP) in Malta (2019-2030)

Medical and Surgical discharges from Mater Dei Hospital

Figure 4 depicts projections of the number of the total number of bed nights used by medical and surgical in-patients at Mater Dei Hospital, and also indicates the projected numbers of medical and surgical hospital beds that will be required over the next decade to meet the projected demands. There were 26,150 discharges of medical in-patients in 2018, who collectively utilized 140,701 bed nights – an average of 5.4 nights per admission/discharge. Likewise, during 2018, Mater Dei saw 29,890 discharges of surgical in-patients who each utilized an average of 2.4 bed nights. The projections demonstrate constant rates of increase of bed nights for both medical and surgical wards, with a much higher rate noted for medical patients. Indeed, it is forecasted that by 2030 the number of bed nights required by medical patients will increase by 50% over 2018 to 211,340.

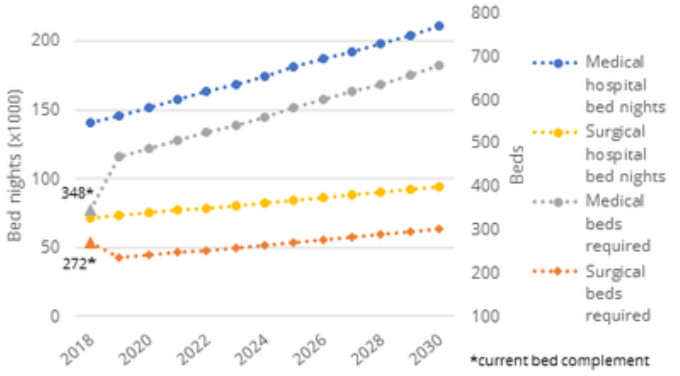

Figure 4: Mater Dei Hospital in-patients and beds
Projected utilization of medical and surgical bed nights, and Projected number of hospital beds required to meet demands (2019-2030)

Bed occupancies above 85% could adversely affect safe, effective hospital function, and an acute hospital can expect regular bed shortages and periodic bed crises if average bed occupancy rises to 90% or more [18],[19]. For this reason, the projected required number of hospital beds is based on the industry norm of 85% occupancy. While the 2018 bed complement at Mater Dei amounted to 272 surgical beds, a slightly higher amount than those required, the 348 medical ward beds are a far cry from the estimated requirements. In fact, the average bed occupancy in the medical wards and to a certain extent even in the surgical wards, almost always exceeds 90%, and it is common occurrence for surgical beds to be taken up by medical patients. When taking into consideration the drastic increase in medical bed nights that are projected by 2030, the required medical bed complement should be doubled by 2030.

Mitigating the challenges through to the future

Malta's health system faces ongoing challenges, big and small, including increasing capacity to cope with the growing population, adapting to an increasingly diverse population, redistributing resources towards the primary care sector, and ensuring access to expensive new medicines while maintaining improvements both sustainably and efficiently [1].

Our projections make it evident that the capacity of the public health system, most especially within the hospital and primary health care will need to expand to be able to cope with Malta's changing demography. Issues of an ageing population are here to stay, and are highly likely to significantly affect expected utilization in certain areas such as medicine and primary health care where increased permanent infrastructure and human resources need to be high on the agenda for long term planning. Policy measures should strongly consider expansion and capacity building in the primary sector, not only to cater for the projected increase in attendances but also beyond the projections, in terms of expanding the primary care service portfolio. Better prevention, surveillance, monitoring and healthcare delivery in the primary are likely to contribute towards reducing hospital admissions as well as addressing the noncommunicable disease burden.

Other areas such as POP, GU, and obstetrics may adapt and cope well with shorter term measures that directly address the current projected increases in service utilization which are then followed by shrinkage. This would mean that new staff employment will be followed by their redundancy.

Other options to consider as easier ways of mitigating expected short term challenges include locum or temporary employment and the re-employment and retaining of retired and retiring staff, together with public-private partnerships.

Mental health is known to differ between migrant groups yet data is scarce [20]. The out-patient psychiatry sector is one that warrants closer monitoring as it appears that it may be under-utilized by foreigners. The estimated future number of incident cases of all cancers worldwide will increase from 18.1 million to 29.5 million from 2018 to 2040 [21].

Malta is no different, and the first steps to address this are to strengthen work on prevention, promoting healthier lifestyle choices, increasing awareness and promoting the uptake of screening as means of facilitating early diagnosis. Further investment into radiology equipment will also be necessary to cope with demands in light of the projected increase in cancer incidence.

Further shift in health burden over the coming years is likely to be defined by specific groups of the population, namely the elderly and the working age migrants. Further results from projects currently underway such as that on the social determinants of health will further help to inform policy in the future. Total health expenditure as a percentage of GDP was 9.1% in 2015, with increasing government spending on health care – current health budget for 2017 increased by 11.4%, now accounting for over 15% of general government expenditure [1],[22].

Demographic change is only one of several factors driving health care spending, alongside the health status of the population, macroeconomic variables, relative cost developments in health care and the incorporation of technology (23). The Global Burden of Disease project predicts that spending on health care is expected to reach $8,586 per person by 2040, based on 2017 purchasing power parity, 2.35 times what it was in 2015 (24). With these projections it appears that further increases in spending may be required even earlier than that.

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